

REMARKS/ARGUMENTS

The claims were rejected under 35 USC §102 in light of the Henkens et al. reference and separately in light of the Cozzette et al. reference. Application maintains that the claims as presently amended are not anticipated or made obvious by either of these references and, accordingly, requests allowance of the pending claims.

Claim 1 was amended to indicate there is a common reference electrode for a plurality of working electrodes. Applicants' structure requires only one reference electrode to be used and certainly allows sharing of a common reference electrode by a plurality of working electrodes. In addition, claim 11 has been added. This claims the electrode structure actually covered with a quiescent solution of an analyte reactive with enzyme bonded to the analyte binding area. This actually is claiming the electrode structure in use. In other words, the electrode structure is used by binding the different analytes to the different analyte binding areas, binding enzymes to the bound analytes and then adding solution containing a substrate to the analyte binding area. Thus, this is claiming a single solution containing the substrate reactive with the bound enzymes.

Both the Henkens et al. and Cozzette et al. references disclose and require separate reference electrode for each working electrode. Neither of these are primarily designed to test multiple analytes simultaneously. The Henkens et al. reference discloses bonding the target directly to the electrodes. Therefore, the analyte binding area is on the electrode as opposed to adjacent the electrode. Further, the Henkens et al. reference actually discloses a separate well for each different electrode. As disclosed in column 20,

lines 53-56, the three electrodes are contained within a bean-shaped depression which serves as a sample well. Thus, these are clearly not used in a way wherein a common solution of substrate reactive with the enzymes would be coated onto multiple analyte binding areas. Thus, the Henkens et al. reference also fails to disclose the limitation in new claim 11. *

The Cozzette et al. reference is primarily designed to form multiple assay devices on a single silicon chip and subsequently cutting these into individual chips. Primarily this is used for making a plurality of the same electrochemical assay devices. Each working electrode requires a separate reference electrode. There are some limited references to forming different assay devices on the same chip. But these do not use analyte binding areas as claimed in applicants' invention. For example, the primary discussion of multiple assay devices is at column 58, lines 38-47. These would be detecting sodium, potassium or chlorine in addition to ammonia. None of these would rely on analyte binding areas. There is also a disclosure of a combined electrode which analyzes glucose and cholesterol, but these use glucose oxidase or cholesterol oxidase and do not have specific analyte binding areas as claimed in the pending application.

Applicants maintain further that it is not obvious to modify either Henkens et al. or Cozzette et al. to arrive at applicants' invention. Neither of these references discloses an apparatus which could function with one reference electrode being shared by multiple working electrodes. Therefore, any such modification would destroy the function disclosed in the respective references. Further, neither of these references would disclose

coating multiple analyte binding sites with a single solution which included substrate reactive with enzyme attached to the analyte binding areas. Such a method would be totally contrary to either of the methodologies disclosed in Henkens et al. or Cozzette et al.

Further, neither Henkens et al. nor Cozzette et al. disclose the manner in which applicants' apparatus functions. Without such a disclosure no one would know to make such changes.

The differences between applicants' invention and the cited references are significant. It allows applicants to manufacture a relatively inexpensive assay for multiple analytes. This effectively allows these devices to be used as single use assays which can be mass produced and do not require the microtechniques disclosed in either of the cited references. These benefits are not taught by the references and support applicants' contention that the claimed invention is patentable. In light of this applicants' respectfully requests allowance of the pending claims.

Respectfully submitted,

WOOD, HERRON & EVANS, L.L.P.

By 

Gregory J. Lunn, Reg. No. 29,945

2700 Carew Tower
441 Vine Street
Cincinnati, OH 45202
(513) 241-2324 - Telephone
(513) 421-7269 - Facsimile